

Field, Forest, and Stream

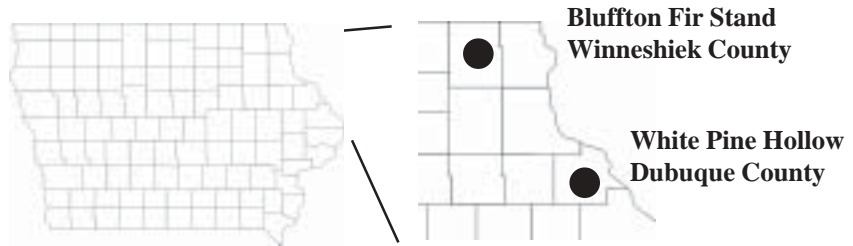
With “Stake Your Claim” variation

Study Units

Unit 1: Iowa’s Forestry Resource Base; Unit 2: Life in the Forest

Supplemental Information

Although mini-microclimates occur within every habitat, Iowa has two unique larger areas that are good examples of microclimates—White Pine Hollow and Bluffton Fir Stand. (See *Unit 1* for more information about microclimates.) These areas are protected as part of the State Preserves system. Many state preserves are unique. For more information, see *The Guide to Iowa’s State Preserves* available from the IDNR or go to the IDNR State Preserves web page: www.iowadnr.gov/preserves/ for maps and descriptions of Iowa’s state preserves.



Teaching Suggestions

Discuss how people can impact or damage a natural area before the activity. How can we lessen our impact on these sites? Introduce the concept of stewardship. (A portion of the activity “Earth Manners” deals with developing a list of guidelines for conduct when visiting natural areas.)

Divide the class into groups and have them complete an *Ecosystem Investigation Worksheet* for each site visited. This will provide a “guided exploration” of the sites. Go over the *Ecosystem Investigation Directions* in class. Make sure all students know how to read a thermometer and use a compass.

A copy and cut page is provided for the variation, “Stake Your Claim.” This variation allows younger students (grades 1-3) to explore an ecosystem by observing the most and least of several factors.

Evaluation

Have students complete the *Ecosystem Wrap-up Worksheet* as an alternate assessment.

Student Materials

Ecosystem Investigation Worksheet
Ecosystem Investigation Directions
Ecosystem Wrap-up Worksheet (Answers will vary.)
Stake Your Claim copy & cut page

Teacher Aids

None

Additional Materials

None

Ecosystem Investigation Worksheet

Ecosystem Element	Site 1–Field Location	Site 2–Forest Location	Site 3–Stream Location
Soil moisture			
Temperature			
Sunlight			
Wind			
Plants			
Animals			

Ecosystem Investigation Directions

Soil Moisture

Equipment: trowel, garden spade, or stick

Use a trowel, garden spade, or stick to scrape the ground. Gather a small sample of soil from under the surface. Feel the soil. Is it wet, moist and forming a ball, or dry and crumbly? Does it feel smooth or gritty like sand? What color is it? Smell it and describe the odor. Examine the soil sample for other items such as evidence of plants and animals. Record your observations on the *Ecosystem Investigation Worksheet*.

Temperature

Equipment: yardstick, thermometer

Measure the temperature one inch deep in the soil, at ground level, and at one yard (three feet) above the ground with a thermometer. If the site is a pond, stream, or lake, measure the temperature one inch deep in the water, just above the water, and one yard above the water. Record your observations on the *Ecosystem Investigation Worksheet*.

Sunlight

Equipment: none

Describe how much sunlight reaches the ground at this site. Use descriptive words such as dark, shady, bright, medium light, or others. Record your observations on the *Ecosystem Investigation Worksheet*.



Ecosystem Investigation Directions

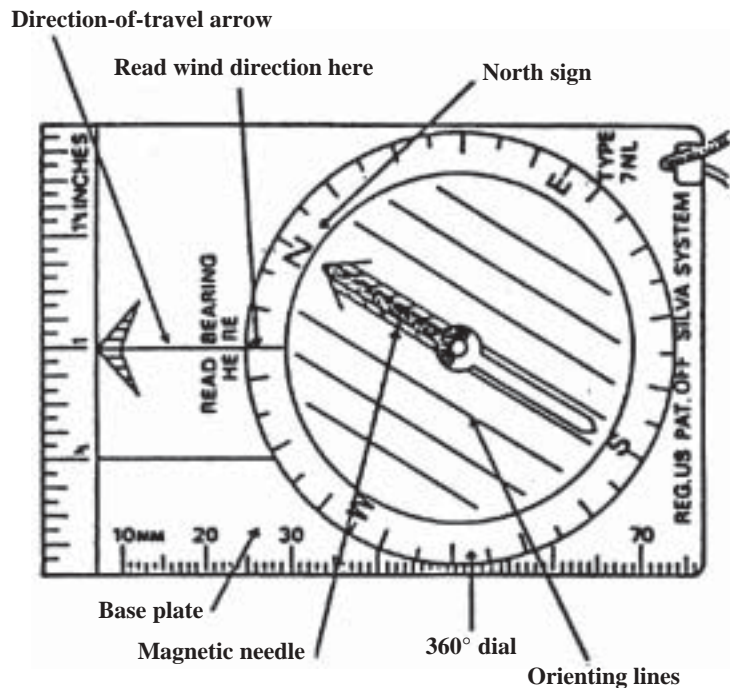
Wind

Equipment: strip of paper, compass

Have a group member hold a strip of paper lengthwise at arm's length. Does it hang straight down or is it moved by the wind?

Determine from what direction the wind is blowing by using a compass. Hold a compass waist high with the direction-of-travel arrow pointing away from your body, making sure the magnetic needle floats freely. Turn the dial so the north sign (N) is pointing in the same direction as the direction-of-travel arrow. Turn your body so the red, magnetic end of the needle points to N (north).

Next, turn so you and the direction-of-travel arrow are facing the direction the wind is coming from (the wind should be in your face). Without moving the base of the compass, rotate the dial so the north sign (N) and the red, magnetic end of the needle are lined up. Read the wind direction at the point where the direction of travel arrow meets the dial. Record your observations on the *Ecosystem Investigation Worksheet*.



Plants

Equipment: none

Observe the many different sizes of plants (large trees, small trees, shrubs, grasses). Do not try to identify them! What type of plant is most common at this site? Describe where each kind of plant is growing in relation to the others. Record your observations on the *Ecosystem Investigation Worksheet*.

Animals

Equipment: none

Explore the site for animals and signs or evidence of animals (insects, birds, reptiles, fish, frogs, mammals, scat or animal droppings, tracks, burrows, or chewed leaves or twigs). Record your observations on the *Ecosystem Investigation Worksheet*.

Ecosystem Wrap-up Worksheet

Directions: Answer each question as completely as possible.



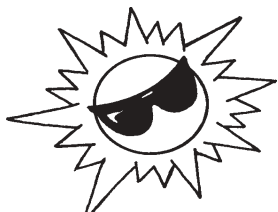
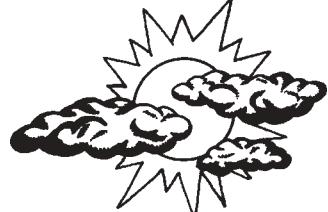

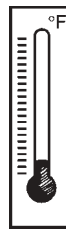
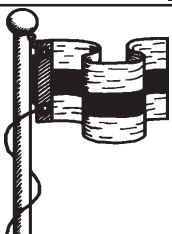



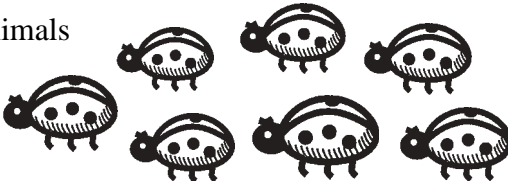
1. How did temperature vary between the field, forest, and stream sites?
2. Describe the differences in the wind at the field, forest, and stream locations.
3. What factors determine the amount of sunlight that reaches the ground?
4. In which location (ecosystem) did you observe the *most* (number) plants growing? What does that area offer so more plants grow there?
5. Did one area have more *kinds* of plants growing than the others? Why or why not?
6. Describe any relationships you observed between plants and animals.
7. List the animals and evidence of animals that were found at each location.
Field:

Forest:

Stream:
8. Were any animals found at only one location? List these animals and the locations where they were found.
9. Why are some animals found at all three locations, while others are found at only one?

“Stake Your Claim” Copy and Cut page

Directions: Photocopy this page and use sticks or stakes to make enough markers so each pair of students has two. Choose a study area and mark boundaries. Give each pair of students “most” and “least” markers for one factor. Have the pairs explore the area, placing the marker where they found the most and least of their factor. When all students are finished, examine the area as a class. Discuss how factors are related (e.g., where the ground is drier, fewer plants grow).

most soil moisture 	least soil moisture 
most sunlight 	least sunlight 
highest temperature 	lowest temperature 
most wind 	least wind 
most plants 	least plants 
most animals 	least animals 